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the drivers of drug consumption would be beneficial in finding the appropriate tool / intervention to restrain polypharmacy and improve patient compliance.

PHP3

INNOVATIVE HEALTH TECHNOLOGIES IN THE "ANTI-AGING-MEDICINE" FIELD: RESULTS FROM A SYSTEMATIC HORIZON SCANNING

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OBJECTIVES: "Anti-Aging", as an example of "preference oriented medicine", is a currently much debated field. While it is sometimes perceived as beneficial in averting unwanted effects of aging, improving quality of life and well-being, there is also substantial criticism. The current investigation aims at providing an overview on new health technologies of potential importance for future "anti-aging" interventions. **METHODS:** The analysis is based on the ZIM innovation database, which comprehensively records developments related to new and emerging health technologies. During the observation period from 2003 to 2007, n = 15,552 datasets covering technological innovations in health care could be identified from international publications and relevant internet sources. In three broadly defined application fields (hormone therapy, cosmetics and interventions related to improvement in cognition) upcoming health technologies were identified from the database. Currently available technologies, their intended use and potential future applications were described. **RESULTS:** Regarding hormone therapy (n = 97 hits in total) most frequently addressed indications were obesity (n = 28), fertility (n = 15), contraception (n = 15), menopause (n = 9), childhood growth (n = 8), and andropause (n = 6). Cosmetic interventions (n = 47 in total) mostly addressed the treatment of face (n = 20), skin (n = 13), and the female breast (n = 6). Reports on cognition (n = 8) focused on the improvement of the physical functioning (n = 5) or controlling of body parts/prostheses (n = 3). For most technologies and applications, however, it proved to be difficult to distinguish a particular "preference oriented" use from a potentially disease-related assignment. **CONCLUSIONS:** Most innovations represent either a minor improvement of an existing intervention or are still far from possible routine use. Findings that specifically indicate "preference based" applications were relatively rare. This leads to the conclusion that research and development of new health technologies primarily starts from a perceived demand for serious diseases and clear-cut indications. Only subsequently "preference oriented" uses may be addressed.

PHP4

PATIENT PREFERENCES TOWARD HEALTH SERVICES PROVIDED BY THE GENERAL PRACTIONER

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OBJECTIVES: In the Dutch health care system, like many other countries, the general practitioner (GP) plays a key role in securing equity and effectiveness in delivering health care. Nowadays, GPs are often part of primary care centers and it is foreseen that these centers will play an even more important role in future health service delivery. A European comparison in nine different countries concluded patients favour small practices and full time GPs. The percentage of GPs working in small practices varies between countries. In the UK the percentage is 16% whereas in Belgium the percentage is 69% and in Netherlands the percentage is 39%. Continuity of care and access is highly appreciated by patients. For instance, it has been shown that patients are more satisfied with primary care if they always have the same GP and if they experience short waiting times. Given the development of larger primary care centers, people are hesitant if the current GP service levels can be maintained. On the other hand, an advantage of primary care centers is that they do offer multiple medical services like pharmacy and physiotherapy. The purpose of this study was two-fold. First, it was questioned which type of services is preferred by patients in three different GP settings and if people would be willing to pay for these services. Second, we wish to investigate differences between patients in different GP settings. The selected GP settings were 1) a single person GP practice (SP); 2) a healthservice with multiple independent GPs (GP); and 3) a multi-disciplinary and comprehensive primary care center supervised by one management (PCC). **METHODS:** A discrete choice experiment (DCE) was carried out among 164 patients in the three different GP settings. The DCE comprised 6 attributes including 1) time to appointment; 2) choice of time; 3) access by telephone; 4) consultation time; 5) availability of other medical services and; 6) WTP. Sample size for the DCE was estimated at about 45 patients in each GP setting. The DCE included 6 attributes. The maximum number of levels for an attribute was three, allowing 72 choice combinations. The DCE survey used 15 random and 2 fixed choicesets. Following the DCE, all 164 and an extra group of 114 patients (278 in total) were interviewed by a research assistent. Sampling was carried out to obtain equal group sizes (approx. 55) in each of the GP settings (SP, GP and PCC). DCE data were analyzed using sawtooth software. This abstract reports the first preliminary analyses of the complete dataset. **RESULTS:** Socio-economic (income and education) and demographic data (age and gender) of patients in each of the GP settings were comparable. The DCE showed preference for improved telephone services and time to appointment as most important attributes. Except for "time to appointment" no large differences were found between the GP settings. Only patients in the GP group accepted longer waiting times compared to SP and PCC. SP and PCC patients did prefer to have access within 24 hours, whereas GP patients accepted longer waiting times. Overall, most important attributes were "time to appointment", "access of service by telephone" and "WTP". The availability of pharmacy services was preferred by all patients. About 50% of all patients werent willing to pay for additional services. However, some 35% was willing to pay an extra amount of €9 for each consult if they would receive additional services. **CONCLUSIONS:** This study shows a similar outcome compared to previous studies on access to GP services. "Time to first appointment" and "access by telephone" are most important factors to consider by patients. However, an interesting finding was that one third of all patients were willing to pay for improved services. The DCE study didn't show big differences in preferences between patients in the different GP settings. In some aspects (e.g. accessability) the SP scored better compared to PCC and GP.

PHP5

HEALTH LITERACY—AN ECONOMIC PERSPECTIVE: A SYSTEMATIC REVIEW

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OBJECTIVES: Health Literacy (HL) is an important skill for health relevant decisions. Limited HL is associated with poorer health outcomes but little is known about the economic implications of limited HL. We assessed 1) the costs of limited HL for the health care system, and 2) the cost-effectiveness of interven-

tions to improve limited HL. **METHODS:** Systematic review with electronic database searches (MEDLINE, EMBASE, PsycINFO, CINHAL and COCHRANE-Library; from 1980 through January 2008), screening of selected books and reference lists, and expert contacts. We included observational and interventional studies that reported HL of participants as one outcome measure. We included populations at high risk for low HL as well as patients with 1) diabetes mellitus, or 2) hyperlipidemia. Studies were screened for eligibility, unclear cases were discussed in a consensus meeting. We performed data extraction and quality assessment; results were checked by a second reviewer. **RESULTS:** We retrieved 2340 papers and included 10 studies for the final analysis. On the health care system level, the additional spending due to low HL corresponds to 3% to 5% of the total health care costs (3 studies with data of more than 50,000 persons from U.S. and Swiss settings). The prevalence of limited HL is considerable (range: 34% to 59%; 4 studies; 110,000 nationally representative persons). Three U.S. studies (data of 3600 persons) report the additional costs of limited HL on the patient level (additional expenditures per year per person with limited HL compared to a reference group with adequate HL; range: US $143 to 7798). One systematic review reported cost-effectiveness data of patient self management programs for diabetes and showed inconclusive results. **CONCLUSIONS:** The costs of limited HL for the health care system may be substantial, but few studies were retrieved, and the results are heterogeneous.

HEALTH CARE USE & POLICY STUDIES—
Diagnosis Related Group

PHP6

CLINICAL AND ECONOMIC OUTCOME OF MECHANICALLY VENTILATED PATIENTS UNDER DRG 483 IN SPAIN: A POPULATION-BASED STUDY

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OBJECTIVES: To analyze the costs and discharge status for patients with prolonged mechanical ventilation undergoing tracheostomy (DRG code 483) in Spain and to examine the impact of age in terms of hospital outcome. **METHODS:** From the 2004 National Hospital Discharge Database records for all patients aged >16 years undergoing mechanical ventilation were retrieved. Demographic characteristics, clinical outcomes and hospital-resources utilization were examined. An exploratory logistic regression analysis and a multiple linear regression analysis were performed to identify factors associated with in-hospital mortality and LOS respectively. To depict the amount of resources spent to procure a given level of desired outcome (hospital survival) we also determined the cost per survivor based in the average National Health Service Charges for DRG 483 (€49,365.37). **RESULTS:** From a total of 33,416 cases undergoing mechanical ventilation during 2004, 4,277 cases (13%) with a final DRG code of 483 were selected and eligible for analysis. Median age was 65 yr (p25:50; p75:73); 67% were men and 54% surgical patients. According to Charlson index, 56% of cases had no associated comorbidity. Overall in-hospital mortality was 41%. Total costs of hospitalizations exceeded € 211 million. An inverse relationship between survival rate and age was consistently observed after adjusting by other clinical variables, and this resulted in an age-related increased cost per survivor (€58,588 in patients aged <45 yrs; €75,1531 in those aged 45–64 yrs; 99,720 in 65–74 yrs and €12,5903 in those older than 74 yrs). **CONCLUSIONS:** Patients who require tracheostomy for prolonged mechanical ventilation have high resource utilization and relatively poor outcomes. Age has a significant impact on outcomes in patients under DRG 483 both from clinical and economic perspectives. These analyses will help inform health care decision-making and resource planning in the face of an ageing population.

PHP7

COMPARING THE ACTUAL HOSPITAL COST OF A PATIENT WITH OESOPHAGEAL CANCER TO NORMATIVE DRG REIMBURSEMENT

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OBJECTIVES: In the Hungarian DRG system it can frequently occur that real costs exceed the amount of reimbursements. Our goal was to compare the difference between the real clinical cost and the normative DRG reimbursement in a single patient case. **METHODS:** Data derive from the financial database of the National Health Insurance Fund Administration (NHIFA) and the clinical database of the University of Pecs. We made an outlay of the patient's variable costs for drugs, infusions, nutritive products, transfusions, laboratory diagnostics and imagining procedures used. The results we obtained were compared to standards calculated by the NHIFA for the surgical treatment of oesophageal cancer. The case was grouped to DRG code number 9540 which had 13.2 weight-number. **RESULTS:** The weight-number of medication components in this DRG category was 1.68 (12.7% of the total 13.2 weight-number). The real medication cost was HUF 3,960,000 which represented 39.6 weight-number. This exceeded the DRG medication reimbursement 23.6 times and was 3 times more than the total reimbursement. In this way just the medication cost was 300% of the total DRG financing. The excess cost was generated by increased drug usage due to the patient's severe septic complications. The main elements of medications were a four-day activated protenine-C treatment representing 53.5% of total drug expenditure, IgM enriched polyclonal antibody therapy (28.4%) and 5 different antibiotics (7.24%). The treatment of severe sepsis made up 89.1% of total medication cost. As an excess, 27.6 weight-number was reimbursed topping the 13.2 weight-number for the original DRG. **CONCLUSIONS:** There was a significant gap between real hospital costs and health insurance reimbursement. On the basis of this analysis, the NHIFA found our demand for extra finance justified and reimbursed our institution with the extra cost applied for. Our case significantly contributed to regulation changes dealing with extra financing for outlayer patient's costs in the DRG system.

PHP8

ADVERSE DRUG REACTIONS IN GERMANY: COST ANALYSIS OF INTERNAL MEDICINE HOSPITALIZATIONS

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OBJECTIVES: German hospital reimbursement changed significantly as a result of the introduction of Diagnosis Related Groups (DRG) in the year 2004. Based on this development no current data on the direct costs of adverse drug reactions (ADR) leading to hospital admissions in departments of internal medicine is available. The objective of our project is to quantify the ADR-related economic burden of the respective ADRs in Germany. **METHODS:** A total of 1242 patient records of ADRs leading to internal medicine hospitalization were surveyed in 4 regional pharmacovigilance centres in Germany within the years